United States
Department of
Agriculture

Soil
Conservation
Service

Cooperating
Agencies

FLOOD PLAIN MANAGEMENT

A Study Of South Fork Shenandoah Tributaries

Rockingham County, Virginia

APPENDIX I

STONY RUN

August 1983

FOREWORD

The main report on the Flood Plain Management Study of South Fork Shenandoah River Tributaries provides information and data needed for use by administrators and the general public. Discussion of findings and recommendations relevant to the total study area are included.

Eight appendixes or technical reports include specifics on each tributary as listed below. Tables, flood profiles and area-flooded photomaps provide information for user agencies and individuals to make technical decisions and to comply with regulations related to the use of flood plains.

Appendix I	Stony Run
Appendix II	Quail Run - Boone Run
Appendix III	Cub Run - Big Run
Appendix IV	Naked Creek
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Appendix VI	Hawksbill Creek
Appendix VII	Mill Creek - Congers Creek
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We thank those who contributed their active interest, cooperation, and information to this project.

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FLOOD PLAIN MANAGEMENT STUDY
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INTRODUCTION

This technical report on Stony Run is one of eight such appendixes to the Flood Plain Management Study on South Fork Shenandoah River Tributaries. The main report includes items such as authorities, responsibilities, scope, procedures, description, recommendations, and data common to the tributaries and relevant to the total project.

The first sections of this appendix present general information pertinent to the study on Stony Run. Included are brief discussions of natural values, alternate solutions to the flood problems, and suggested items for the flood plain management program. The last section contains data and exhibits needed to make technical decisions for regulation and use of the flood plain.

DESCRIPTION OF STUDY AREA

Upstream Drainage Area

The Stony Run drainage area comprises 7.7 square miles above its mouth at the South Fork Shenandoah River (see Figure 1). The Shenandoah River is a subbasin of the Potomac River which is in the Mid-Atlantic Region as designated by the Water Resources Council. The USGS Hydrologic Unit code number in the area is 02070005. The watershed is in the Appalachian Ridges and Valleys physiographic province. Soils in the upper third of the drainage area are formed mainly in residuum from acid sandstone, shale, and phyllites on mountain slopes. Berks-Laidig-Weikert is the predominant soil series. Soils in the lower two-thirds of the watershed are formed in residuum from limestone, sandstone, and shale on uplands in limestone valleys. The predominant soil series is Frederick-Lodi-Rock Outcrop. Upland land use is about 30 percent rural residential, farmstead, and other built-up areas including a ski resort in the headwaters. The remainder includes about 34 percent woodland, 28 percent cropland, and 8 percent pasture, meadow and idle brushland.

Flood Plain

The study area includes the flood plain along 4.4 miles of Stony Run. It extends from the junction at South Fork Shenandoah River up through the community of McGaheysville to the vicinity of Hershberger Gap. Land use in the flood plain is about 45 percent pasture, hay and meadow, 21 percent cropland, 22 percent idle brushland, 7 percent woods and 5 percent miscellaneous. About 50 bridges, dwellings, farm buildings and other structures would be subject to varying amounts of damage during extreme floods.

Natural and Beneficial Flood Plain Values

The stream corridor through the flood plain has limited potential for nongame fish and wildlife habitat. Development and intensive use has virtually destroyed even this limited value except in the reaches still devoted to agriculture. Streambank stabilization and protection and establishment of vegetation cover are the primary needs to restore this potential.

FLOOD HISTORY

Flooding on Stony Run usually results from intense thunderstorm activity. Excess rainfall concentrates quickly on the steep slopes; flood stages rise rapidly and fall just as quickly. Limited flooding and damage may occur several times each year. On average, moderately severe damages are experienced at three to five year intervals. No records or recollections were noted on unusually severe floods on Stony Run. Average annual flood damages were estimated at $10,000 to $15,000.

FLOOD POTENTIAL

Present Conditions

Extreme floods would inundate about 127 acres of primarily agricul-tural land (see Table below). Extensive damage would be done to the land, crops, fences, farm roads, buildings and machinery. Less extensive but more critical damage would accrue to dwellings and businesses. Velocities would average about five feet per second and exceed seven feet per second in some reaches. Out-of-bank stages would range from about two to ten feet. Duration of flooding would seldom exceed six hours except during storms of intense and prolonged rainfall. Figure 1 and Figure 2 show potential flood stages at McGaheysville and at a bridge downstream.

The acres tabulated below are used primarily for pasture and other agricultural uses. Only about five percent is occupied by structure sites, but varying amounts of damage would occur to 23 dwellings, 6 trailers, 11 farm buildings, 2 commercial structures and 11 bridges.

	Acres Inundated	
Type of Damage	100-year flood	500-year flood
Agricultural	101	120
Miscellaneous	6	7
TOTAL	107	127

Figure 1. Looking east across Stony Run in McGaheysville, Virginia at State Route 996 (old US Highway 33).

Figure 2. Looking north, at State Route 649 crossing of Stony Run south of McGaheysville.

Limitations on Use of Data. The flood elevations given in this report should be considered as minimum elevations. During floods, uprooted trees and other debris may collect on bridges and culverts and clog the channels. Such obstructions increase the depth and extent of flooding. Analyses were made without showing the effects of potential obstructions. Also, extremely rare events such as dam failure and climatic changes were not analyzed.

Future Conditions

The hydrologic conditions in the upstream areas are expected to improve as farmers and foresters continue to apply good management and conservation practices. This improvement is expected to reduce runoff approximately to the extent that additional development will increase runoff. Therefore, the flood hazard and damage potential is not expected to change significantly in the next 10 to 15 years.

FLOOD PLAIN MANAGEMENT

The main report includes a discussion of existing programs, current regulations, availability of flood insurance, recommendations, and related items relevant to the total study. The items discussed below relate only to Stony Run.

Floodway. The data for a "first trial" or computed floodway is filed with the basic data for Stony Run. The results indicate that hazardous conditions of depth and/or velocity prevail at current 100-year flood levels in all reaches, and that generally no additional encroachment should be allowed. The data can be used as a basis for further study of local measures, but it is suggested that no continuous or extensive floodway be considered.

Recommendations

In preparation of their comprehensive flood management program, the local sponsors should implement the following recommendations on Stony Run:

-- Monitor future developments in the watershed to assure that regulations are followed so as not to increase the flood hazard, particularly in the drainage area above McGaheysville;

-- Assist landowners in studies of local protection measures to reduce streambank erosion and the spread of floodwaters; and

-- Encourage the re-establishment of natural vegetation in the flood plain to restore the fish and wildlife habitat.

Evaluation of Potential

The potential for reducing the flood hazard on Stony Run is limited by the relatively low value of damages from flooding. Yet, the damages are great enough that the "do-nothing" alternate does not warrant serious consideration.

Conversely, a brief study of contour maps indicates that flood control dams could not be economically justified. On the steep gradients, construction costs added to the costs of land rights would be excessive when related to resultant benefits.

Hydrologic conditions under current land use and management practices are generally good to excellent. An improved conservation use-and-land treatment only program would provide only limited reductions in runoff and flood stages.

These observations apply generally to all the study tributaries as do the recommendations listed in the main report. The primary opportunities have to do with prohibition of future construction or other encroachment in the flood plains; and with other regulations needed to avoid increased runoff and to minimize flood damages.

TECHNICAL DATA AND EXHIBITS

This section provides the data and exhibits needed by user agencies and individuals to make technical decisions and to comply with regulations on use of the flood plain on Stony Run.

The index map shows the area covered by the individual photomaps. Flood hazard photomaps show the area inundated by the 100 and 500-year floods. Where only one line is shown, there is no significant difference in the boundaries of the two flood areas. These photomaps should only be used to determine approximate flood elevations; they are based on semicontrolled mosaics and the boundaries shown may vary from the location on the ground.

Flood profile plates provide elevations of the 10, 50, 100 and 500-year floods at any location along the length of the streams. The elevations and discharges of the 10, 25, 50, 100 and 500-year flood at each surveyed cross section are given in Table SR-1. Sample cross sections illustrated how the flood area boundaries were located. Table SR-2 provides the description and elevation of benchmarks which are located on the photomaps.

Table SR-1 can be used to locate flood elevations on the ground at surveyed cross sections.

The photomaps, flood profiles and bench mark data can be used to locate flood elevations between surveyed cross sections, as follows:

1. On the appropriate photomap find the point on the stream where the flood line is to be located; then scale the distance along the stream to the nearest cross section.

2. On the appropriate flood profile sheet, scale the distance determined in Step 1 from the cross section back to the original stream location, and read the elevation of the desired flood frequency line.

3. Transfer the elevation determined in Step 2 to the ground from the nearest established benchmark.

A glossary, bibliography and discussion of technical procedures are included in the main report for this study. The basic data is on file in the office of the USDA Soil Conservation Service, Richmond, Virginia 23240.

INDEX TO PHOTOMAP SHEET COVERAGE

SOUTH FORK SHENANDOAH RIVER TRIBUTARIES

PAGE COUNTY AND ROCKINGHAM COUNTY, VIRGINIA

VIRGINIA

SFS22, SFS23, & PFR1
NOT INCLUDED IN STUDY

Shenandoah

PAGE CO

GREENE CO

ALBEMARLE CO

AUGUSTA CO

HARRISONBURG
(ind city)

Elkton

Keezletown

McGaheysville

Montevideo

Penn Laird

Rockingham

Cross Keys

Mt Crawford

Bridgewater

Dayton

Hinton

Edom

Lacy Spring

Grottoes

GEORGE WASHINGTON NATIONAL FOREST

SHENANDOAH NATIONAL PARK

BLUE RIDGE DRIVE

SKYLINE DRIVE

MASSANUTTEN MT

CHESAPEAKE & OHIO CANAL

SOUTHERN

WESTERN

NORFOLK

Linville Cr

Naked Cr

Dry Run

Peterfish Run

Hunes Run

Quail Run

Boone Run

Hawksbill Creek

Twomile Run

Onemile Run

Big Run

Deep Run

Madison Run

Cub Run

Duck Run

Mill Creek

Stony Creek

Shenandoah River

North River

South River

Cooks Creek

Blacks Run

Pleasant Run

NC1 West Br

NC1 East Br

NC2

NC3

NC4

NC5

SFS22

SFS23

PFR1

DR1

DR2

DR3

QR1

QR2

QR3

BR1

HC1

HC2

HC3

HC4

SC1

SC2

CR1

CR2

CR3

CR4

CR5

MC1

MC2

MC3

MC4

PR1

PR2

PR3

763

81

42

257

33

340

276

679

78° 45' 00"

78° 30' 00"

38° 30' 00"

38° 15' 00"

79° 00' 00"

5 4 3 2 1 0 5 Miles

5 4 3 2 1 0 5 Kilometers

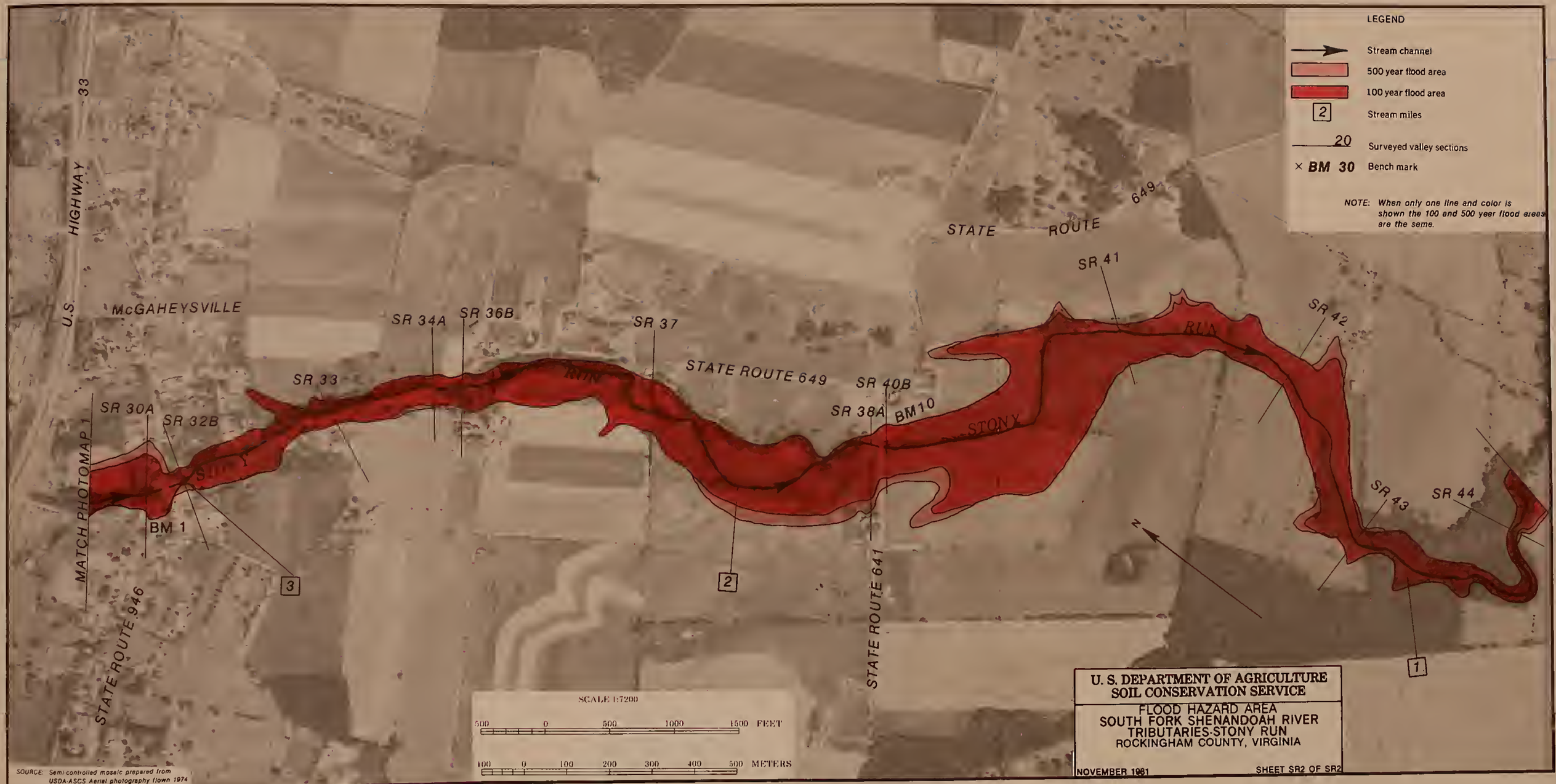
LEGEND

Stream channel

HC3 Sheet coverage

Source: SCS county base checked to USGS quads


LEGEND
Stream channel
500 year flood area
100 year flood area
2 Stream miles
16 Surveyed valley sections
× BM 10 Bench mark
NOTE: When only one line and color is shown the 100 and 500 year flood areas are the same.
STATE ROUTE 647
SR 10
SR 11
UPPER LIMIT OF STUDY
BM 8
STONY
SR 12
SR 13A
SR 15BA
SR 17B
SR 18A
SR 20B
SR 21A
SR 23B
SR 24
SR 25A
SR 27BA
SR 29B
MATCH PHOTOMAP 2
CHESAPEAKE AND WESTERN RAILWAY
U.S. HIGHWAY 33
BM 2
4
N
SCALE 1:7200
500 0 500 1000 1500 FEET
100 0 100 200 300 400 500 METERS
SOURCE: Semi-controlled mosaic prepared from USDA-ASCS Aerial photography flown 1974
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
FLOOD HAZARD AREA
SOUTH FORK SHENANDOAH RIVER
TRIBUTARIES-STONY RUN
ROCKINGHAM COUNTY, VIRGINIA
NOVEMBER 1981
SHEET SR1 OF SR2


LEGEND
Stream channel
500 year flood area
100 year flood area
2 Stream miles
20 Surveyed valley sections
× BM 30 Bench mark
NOTE: When only one line and color is shown the 100 and 500 yeer flood areas are the seme.
U.S. HIGHWAY 33
McGAHEYSVILLE
STATE ROUTE 649
SR 41
SR 42
SR 43
SR 44
SR 34A
SR 36B
SR 37
SR 33
SR 30A
SR 32B
SR 40B
SR 38A
BM10
BM 1
STONY RUN
STATE ROUTE 641
MATCH PHOTOMAP 1
STATE ROUTE 946
SCALE 1:7200
500 0 500 1000 1500 FEET
100 0 100 200 300 400 500 METERS
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
FLOOD HAZARD AREA
SOUTH FORK SHENANDOAH RIVER
TRIBUTARIES-STONY RUN
ROCKINGHAM COUNTY, VIRGINIA
NOVEMBER 1981
SHEET SR2 OF SR2
SOURCE: Semi-controlled mosaic prepared from USDA-ASCS Aerial photography flown 1974
USDA-SCS-FORT WORTH, TEXAS 1983

FLOOD PROFILES

S. FORK SHENANDOAH RIVER TRIBS.
ROCKINGHAM COUNTY, VIRGINIA

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed | Date
Drawn: MAM 2/80
Traced
Checked

PLATE 1 of 4
STONY RUN - See Photomap SR2

50-Yr. Freq. NOT Shown on this Sheet

LEGEND

500 YR	SURVEYED X-SECTION	SR16
100 YR	ELEV-BRIDGE DECK	I
50 YR	ELEV-LOW BEAM	I
10 YR	ELEV-LOW ROAD	—
LOW BANK	STATE ROUTE 600	SR 600
CHANNEL BOTTOM	US HIGHWAY 99	US 99
	STREAM MILES	4

UPPER LIMIT OF STUDY

SR10

SR11

SR12

SR 13A

SR 14

SR 15BA

SR 16

SR 17B

SR 18A

SR 19

SR 20B

Culvert

SHIFT VERT. SCALE

SR 21A

SR 22

SR 23B

Culvert

SR 24

SR25A

SR 26

SR27BA

SR28

SR29B

Culvert

SHIFT VERT. SCALE

SR11

SR12

4

ELEVATION (FEET NGVD)

1290
1280
1270
1260
1250
1240

235+00 230+00 225+00 220+00 215+00 210+00 205+00 200+00 195+00 190+00 185+00 180+00 175+00 170+00

CHANNEL STATIONS - STONY RUN

FEET ABOVE M.U.T.

Discontinue 50-Yr Freq. at SR29B

SR29B

SR 30A | SR 31 | SR 32B

SR 33

State Route 649 SR35

SR 34A

SR 36B

SR 37

3

1140
1130
1120
1110
1100
1090
1080
1070
1060

ELEVATION (FEET NGVD)

175+00 170+00 165+00 160+00 155+00 150+00 145+00 140+00 135+00 130+00 125+00 120+00 115+00

CHANNEL STATIONS - STONY RUN
FEET ABOVE MOUTH

LEGEND

500 YR	SURVEYED X-SECTION	SR35	
100 YR	ELEV-BRIDGE DECK		
50 YR	ELEV-LOW BEAM		
10 YR	ELEV-LOW ROAD		
LOW BANK	STATE ROUTE 600	SR 600	
CHANNEL BOTTOM	US HIGHWAY 99	US 99	
	STREAM MILES	3	

FLOOD PROFILES

S. FORK SHENANDOAH RIVER TRIBS.
ROCKINGHAM COUNTY, VIRGINIA

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Date
Designed
Drawn MAM 2/80
Traced
Checked

PLATE 2 of 4
STONY RUN - See Photomap SR 162

FLOOD PROFILES

S. FORK SHENANDOAH RIVER TRIBS.
ROCKINGHAM COUNTY, VIRGINIA

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Date
Designed
Drawn MAM 2/80
Traced
Checked

PLATE 3 of 4
STONY RUN - See
Photomap SR2

LEGEND

500 YR	SURVEYED X-SECTION	SR16
100 YR	ELEV-BRIDGE DECK	
50 YR	ELEV-LOW BEAM	
10 YR	ELEV-LOW ROAD	
LOW BANK	STATE ROUTE 600	SR 600
CHANNEL BOTTOM	US HIGHWAY 99	US 99
	STREAM MILES	4

ELEVATION (FEET NGVD)

1080
1070
1060
1050
1040
1030
1020

SR 37
SR 38A
SR 39
SR 40B
SR 41
SR 42

2

120+00 115+00 110+00 105+00 100+00 95+00 90+00 85+00 80+00 75+00 70+00 65+00 60+00 55+00

CHANNEL STATIONS - STONY RUN
FEET ABOVE MOUTH

FLOOD PROFILES

S. FORK SHENANDOAH RIVER TRIBS.
ROCKINGHAM COUNTY, VIRGINIA

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Date
Designed
Drawn MAM 2/80
Traced
Checked

PLATE 4 of 4
STONY RUN - See Photomap SR2

LEGEND

500 YR	SURVEYED X-SECTION	SR42
100 YR	ELEV-BRIDGE DECK	I
50 YR	ELEV-LOW BEAM	
10 YR	ELEV-LOW ROAD	—
TOP BANK	STATE ROUTE 600	SR 600
CHANNEL BOTTOM	US HIGHWAY 99	US 99
	STREAM MILES	1

SR 42
SR 43
SR 44
SR 45A
SR 46
SR 47B

JCT with SHEN. RIV.

BACKWATER FROM SOUTH FORK SHEN. RIVER
OVERRIDE STAGES COMPUTED FOR STONY RUN

ELEVATION (FEET NGVD)

1030
1020
1010
1000
990
980
970

1

60+00 55+00 50+00 45+00 40+00 35+00 30+0 25+00 20+00 15+00 10+00 5+00 0+00

CHANNEL STATIONS - STONY RUN
FEET ABOVE MOUTH

FLOOD PROFILES

S. FORK SHENANDOAH RIVER TRIBS.
ROCKINGHAM COUNTY, VIRGINIA

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

	Date
Designed	
Drawn	MAM 2/80
Traced	
Checked	

PLATE 3 of 4
STONY RUN - See Photomap SR2

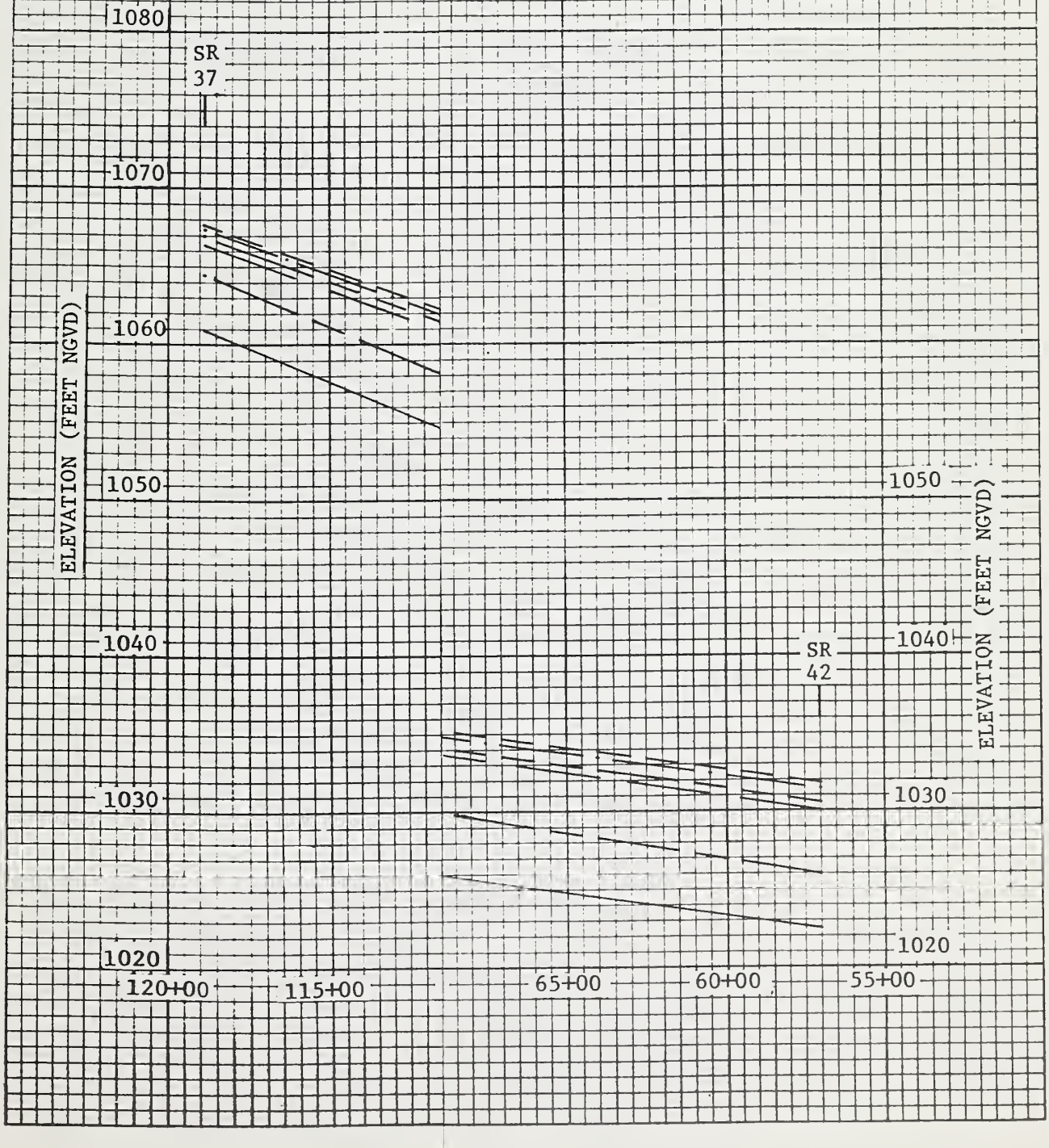


Table SR 1 Frequency-discharge-elevations, Stony Run
South Fork Shenandoah River Tributaries, Rockingham County, Virginia - Continued

X-Sec.	Photomap No.	Profile Plate No.	DA (sq mi)	10-year Disch. (cfs)	10-year Elev. (ngvd)	25-year Disch. (cfs)	25-year Elev. (ngvd)	50-year Disch. (cfs)	50-year Elev. (ngvd)	100-year Disch. (cfs)	100-year Elev. (ngvd)	500-year Disch. (cfs)	500-year Elev. (ngvd)
	Stony Run - Upper limit of study												
SR10	SR1	1	3.76	1320	1293.9	1720	1294.6	2020	1294.9	2350	1295.3	2970	1295.7
SR11	SR1	1	3.90	1370	1247.6	1790	1248.0	2090	1248.4	2440	1248.8	2970	1249.3
SR12	SR1	1	3.97	1380	1208.0	1810	1208.5	2110	1208.7	2460	1209.0	3020	1209.3
SR13A	SR1	1	3.98	1380	1203.4	1820	1204.0	2130	1204.4	2480	1204.7	3030	1205.2
SR14R	SR1	1	3.98	Private road, Over culvert 1200.0, Low road 1196.5									
SR15BA	SR1	1	4.00	1390	1197.4	1820	1197.9	2130	1198.2	2480	1198.5	3030	1198.9
SR16R	SR1	1	4.00	Private road, Bridge deck 1195.2, Low steel 1194.5, Low road 1193.5									
SR17B	SR1	1	4.00	1390	1193.2	1820	1193.5	2130	1193.8	2480	1194.2	3030	1194.6
SR18A	SR1	1	4.03	1390	1189.1	1820	1189.5	2130	1189.7	2480	1189.9	3030	1190.2
SR19R	SR1	1	4.03	Private road, Over culvert 1187.7, Low road 1186.0									
SR20B	SR1	1	4.04	1390	1186.1	1820	1186.4	2130	1186.5	2480	1186.7	3030	1187.0
SR21A	SR1	1	4.07	1390	1177.7	1820	1178.0	2130	1178.3	2480	1178.5	3030	1178.8
SR22R	SR1	1	4.07	Private road, Bridge deck 1176.8, Low steel 1175.8, Low road 1175.3									
SR23B	SR1	1	4.07	1390	1176.5	1820	1176.9	2130	1177.0	2480	1177.3	3030	1177.5
SR24	SR1	1	4.12	1420	1161.3	1860	1161.8	2160	1162.1	2540	1162.4	3110	1162.6
SR25A	SR1	1	4.15	1420	1152.4	1860	1153.4	2160	1153.6	2540	1153.7	3120	1154.1
SR26R	SR1	1	4.15	N&W Railway, Bridge deck 1153.0, Low steel 1151.0, Low road 1152.4									
SR27BA	SR1	1	4.15	1420	1151.0	1860	1152.4	2160	1152.6	2540	1152.8	3120	1153.2
SR28R	SR1	1	4.16	U. S. Highway 33-Culvert, Hwy Over culvert 1152.9, Low road 1152.0									
SR29B	SR1&2	2	4.20	1440	1144.7	1890	1144.9	2200	1145.0	2570	1145.3	3160	1145.5
SR30A	SR2	2	5.45	1710	1128.1	2240	1128.6	2620	1128.9	3060	1129.1	3720	1129.5
SR31R	SR2	2	5.45	Old U. S. Highway 33, Bridge deck 1126.7, Low steel 1124.6, Low road 1126.7									
SR32B	SR2	2	5.46	1710	1125.0	2240	1125.4	2620	1125.6	3060	1126.0	3720	1126.5
SR33	SR2	2	5.91	1790	1097.3	2340	1097.8	2740	1098.1	3180	1098.5	3840	1098.9
SR34A	SR2	2	5.97	1800	1085.5	2350	1086.0	2750	1086.4	3190	1086.6	3860	1087.0
SR35R	SR2	2	5.97	State Route 649, Bridge deck 1085.5, Low steel 1083.6, Low road 1083.3									
SR36B	SR2	2	5.98	1810	1084.0	2350	1084.6	2750	1085.0	3190	1085.4	3860	1085.8
SR37	SR2	2&3	6.14	1820	1066.6	2380	1067.0	2790	1067.3	3210	1067.5	3890	1067.7
SR38A	SR2	3	6.30	1830	1048.6	2400	1049.4	2800	1049.6	3270	1049.8	3980	1050.2
SR39R	SR2	3	6.30	State Route 641, Bridge deck 1048.5, Low steel 1047.0, Low road 1048.4									
SR40B	SR2	3	6.31	1830	1046.7	2400	1047.3	2800	1047.5	3270	1047.7	3980	1048.1

Table SR 1 Frequency-discharge-elevations, Stony Run
South Fork Shenandoah River Tributaries, Rockingham County, Virginia - Continued

X-Sec	Photomap No.	Profile Plate No.	DA (sq mi)	10-year Disch. (cfs)	10-year Elev. (ngvd)	25-year Disch. (cfs)	25-year Elev. (ngvd)	50-year Disch. (cfs)	50-year Elev. (ngvd)	100-year Disch. (cfs)	100-year Elev. (ngvd)	500-year Disch. (cfs)	500-year Elev. (ngvd)
SR41	SR2	3	6.73	1930	1034.4	2550	1034.8	2940	1035.0	3410	1035.3	4150	1035.9
SR42	SR2	3&4	7.02	1990	1030.0	2650	1030.6	3010	1030.9	3550	1031.3	4300	1031.9
SR43	SR2	4	7.19	2000	1021.1	2700	1021.9	3090	1022.2	3600	1022.6	4390	1023.4*
SR44	SR2	4	7.64	2120	1000.5*	2790	1001.9*	3210	1002.6*	3800	1003.5*		
SR45A		4	7.69										
SR46R		4	7.69	State Route 650, Bridge deck 994.6, Low steel 992.4, Low road 994.6									
SR47B		4	7.70										
Jct South Fk Shen		4	7.70		995.1**		999.7**		1001.5**		1004.0**		1009.0**

* For 10, 25, 50 and 100-year stages below X-Sec. SR 44, and for 500-year stages below X-Sec. SR 43, see Flood Hazard Study for South Fork Shenandoah River and North River. Backwater from the main stem of South Fork overrides the stages on Stony Run in this reach.

** Stages on South Fork Shenandoah at mouth of Stony Run.

Table SR-2 Benchmark descriptions, Stony Run, Rockingham County, Virginia - 1979

B.M. No.	Photo Sheet No.	Description, location and elevation
8	SR-1	SCS TBM - near X-sec. SR-11, 150 feet downstream, a metal disk is located in the base of power pole #23, 250 feet southwest of dwelling and 200 feet east of barn. Elevation 1244.13
2	SR-1	SCS TBM - A square is chiseled on the upstream (northwest) head wall of concrete culvert of the westbound lane of U.S. Hwy 33 over Stony Run at McGaheysville, Virginia. Elevation 1150.88
1	SR-2	SCS TBM - a square is chiseled on the upstream (southeast) abutment of bridge over Stony Run on State Route 996 in McGaheysville, Virginia. Elevation 1127.35
10	SR-2	SCS TBM - A square is chiseled on top of the downstream (southeast) abutment of bridge No. 6039 over Stony Run on State Route 641, approximately 400 feet west of Jct. with State Route 641 & 649. Elevation 1048.70

Note: Elevation in feet above National Geodetic Vertical Datum of 1929.